

Methylene Chloride



U.S. Department of Labor
Occupational Safety and Health Administration

OSHA 3144
1997

Report Documentation Page

Report Date 00001997	Report Type N/A	Dates Covered (from... to) -
Title and Subtitle Methylene Chloride	Contract Number	
	Grant Number	
	Program Element Number	
Author(s)	Project Number	
	Task Number	
	Work Unit Number	
Performing Organization Name(s) and Address(es) U.S. Department of Labor Occupational Safety & Health Administration 200 Constitution Avenue Washington, DC 20210	Performing Organization Report Number OSHA 3144	
Sponsoring/Monitoring Agency Name(s) and Address(es)	Sponsor/Monitor's Acronym(s)	
	Sponsor/Monitor's Report Number(s)	
Distribution/Availability Statement Approved for public release, distribution unlimited		
Supplementary Notes		
Abstract When established under the authority of the Occupational Safety and Health Act of 1970, the Occupational Safety and Health Administration (OSHA) had 2 years to adopt existing federal standards or national consensus standards so it would have Standards in place to enforce. OSHA chose to adopt existing federal standards issued under the Walsh-Healey Public Contracts Act, which were derived from threshold limit values of the American Conference of Governmental Industrial Hygienists and consensus standards from standards developing organizations such as the American National Standards Institute (ANSI). For methylene chloride, OSHA adopted an ANSI standard under Subpart Z of Title 29 Code of Federal Regulations (CFR), Part 1910.1000 to ensure that employee exposure did not exceed 500 parts per million parts of air (500 ppm) as an 8-hour time-weighted average (TWA)---i.e., the average exposure during an 8-hour period. Since 1971, however, industrial experience, new developments in technology, and emerging scientific data clearly indicate that this limit did not adequately protect worker health. The agency realized the need to better control worker exposure to methylene chloride due to its harmful health effects.		
Subject Terms		

Report Classification unclassified	Classification of this page unclassified
Classification of Abstract unclassified	Limitation of Abstract UU
Number of Pages 36	

This informational booklet is intended to provide a generic, non-exhaustive overview of a particular standards-related topic. This publication does not itself alter or determine compliance responsibilities, which are set forth in OSHA standards themselves and the *Occupational Safety and Health Act*. Moreover, because interpretations and enforcement policy may change over time, for additional guidance on OSHA compliance requirements, the reader should consult current administrative interpretations and decisions by the Occupational Safety and Health Review Commission and the courts.

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Background

When established under the authority of the *Occupational Safety and Health Act of 1970*, the Occupational Safety and Health Administration (OSHA) had 2 years to adopt existing federal standards or national consensus standards¹ so it would have Standards in place to enforce. OSHA chose to adopt existing federal standards issued under the *Walsh-Healey Public Contracts Act*, which were derived from threshold limit values of the American Conference of Governmental Industrial Hygienists and consensus standards from standards developing organizations such as the American National Standards Institute (ANSI).

For methylene chloride, OSHA adopted an ANSI standard under *Subpart Z of Title 29 Code of Federal Regulations (CFR)*, Part 1910.1000 to ensure that employee exposure did not exceed 500 parts per million parts of air (500 ppm) as an 8-hour time-weighted average (TWA)--i.e., the average exposure during an 8-hour period.

Since 1971, however, industrial experience, new developments in technology, and emerging scientific data clearly indicate that this limit did not adequately protect worker health. The agency realized the need to better control worker exposure to methylene chloride due to its harmful health effects.

Methylene chloride, also called dichloromethane, is a volatile, colorless liquid with a chloroformlike odor. Inhalation and skin exposure are the predominant means of exposure to methylene chloride. Inhaling the vapor causes mental confusion, light-headedness, nausea, vomiting, and headache. With acute, or short term exposure, methylene chloride acts as an anesthetic; continued exposure may cause staggering, unconsciousness, and even death. High concentrations of the vapors may cause irritation of the eyes and respiratory tract and aggravate the symptoms of angina. Sin contact with liquid methylene chloride causes irritation and burns. Splashing methylene chloride into the eyes causes irritation. Studies on laboratory animals indicate that long-term (chronic)exposure causes cancer.

Methylene chloride is used in various industrial processes in many different industries: paint stripping, pharmaceutical manufacturing, paint remover manufacturing, metal cleaning and degreasing, adhesives manufacturing and use, polyurethane foam production, film base manufacturing, polycarbonate resin production, and

¹Consensus standards are developed by private, standards-developing organizations and are discussed and substantially agreed upon through consensus by industry, labor, and other representatives.

distribution and formulation of solvents.

The agency adopted the methylene chloride final rule on January 10, 1997 as published in the *Federal Register*. The rule becomes effective on April 10, 1997.

Scope and Application

OSHA standard (*Title 29 Code of Federal Regulations*, Parts 1910.1052, 1915.1052, and 1926.1152) covers all occupational exposures to methylene chloride in all workplaces in general industry, shipyard employment, and construction.

Provisions of the Standard

Exposure Limits

The employer must ensure that no employee is exposed to an airborne concentration of methylene chloride in excess of 25 ppm as an 8-hour TWA. Reaching or exceeding the action level signals that employers must begin compliance activities such as exposure monitoring and medical surveillance.

The action level for a concentration of airborne methylene chloride is 12.5 ppm calculated as an 8-hour TWA. Reaching or exceeding the action level signals that employers must begin compliance activities such as exposure monitoring and medical surveillance.

Regulated Areas

The standard requires that the employer establish a regulated area where exposure to airborne concentrations of methylene chloride exceeds or can be expected to exceed either the PEL or the STEL. Only authorized employees² may enter a regulated area. Employers must demarcate regulated areas to effectively alert employees of the boundaries and minimize the number of authorized employees exposed.

Employers at multi-employer worksites must notify other employers onsite of the locations of all regulated areas and access restrictions. For each person entering a regulated area, the employer must supply appropriate respiratory protection. (See the respirator selection and use requirements elsewhere in this publication.) In addition, the employer must ensure that employees wearing respirators do not engage in activities,

²An authorized employee is any person specifically permitted by the employer or required by work duties to be present.

such as taking medication or chewing gum, that may interfere with respirator seal or performance.

The standard prohibits non-work activities-such as eating, drinking, smoking, chewing gum or tobacco, taking medication, or applying cosmetics-in regulated areas. Employees must not store any products associated with these activities in a regulated area.

Hazard Communication

Provisions in the methylene chloride standard are consistent with those in OSHA's *Hazard Communication Standard*--29 CFR 1910.1200, 29 CFR 1915.1200, and 29 CFR 1926.59--which require employers to inform employees of the hazards and identities of chemicals that they are exposed to when working.

Specifically, the methylene chloride rule requires the employer to communicate on labels and in material safety data sheets (MSDSs) the health hazards of working with methylene chloride, including cancer, cardiac effects (including the elevation of carboxyhemoglobin), central nervous system effects, and skin and eye irritation.

Exposure Monitoring

Through air sampling and monitoring, employers can better determine methylene chloride exposure, identify the source, and select the proper control methods-resulting in better protection for employees. Exposure monitoring also is key to determining which other requirements of the standard need to be met.

To determine employees exposure to methylene chloride, the employer must use breathing zone air samples representative of the employees' 8-hour TWA and 15-minute exposure. To determine how employee exposures relate to the 8-hour TWA PEL, employers must take one or more personal breathing zone air sample representing full-shift exposure for each shift for at least one employee in each job classification in each work area. To determine how employee exposure relate to the STEL, employers must take one or more samples representing 15-minute exposures associated with those operations for each shift for at least one employee in each job classification in each work area. When the employer can document comparable exposure levels for similar operations in different work shifts, the employer only needs to determine representative employee exposures for the one shift where the highest exposure is expected.

Initial Monitoring

All employers must monitor employee exposure initially to accurately determine the airborne concentrations of methylene chloride. However, initial monitoring can be waived

- if objective data---representing the highest methylene chloride exposure likely to occur during processing using, or handling---demonstrate that methylene chloride cannot be released in airborne concentrations above the action level or the STEL,
- if the employer monitored employee airborne exposure within 1 year prior to the effective date of the standard and the monitoring satisfies all other requirements, or
- where employees are exposed to methylene chloride for fewer than 30 days per year (e.g., on a construction site) and the employer uses direct-reading instruments giving immediate results (such as a detector tube) and providing sufficient information to determine what control measures are necessary to reduce exposure to acceptable levels.

Employers with fewer than 20 employees must complete all initial monitoring within 300 days after the effective date of the standard, or by February 4, 1998, or after introduction of methylene chloride into the workplace; polyurethane foam manufacturers with 20 to 99 employees-within 210 days, or by November 6, 1997; and all other employers---within 120 days, or by, August 8, 1997.

Periodic Monitoring

The employer must begin an exposure monitoring program for all tasks where initial monitoring shows employee- exposures are above the action level or STEL.(See Table 1 for monitoring requirements in the standard.)

If employee exposure is above the action level, but at or below both the PEL and STEL, employers must monitor employees at least every 6 months. If exposure is above the PEL or STEL, employers must monitor employees at least every 3 months.

For employees with two consecutive measurements taken at least 7 days apart that indicate that exposure has decreased below both the PEL and STEL, employers may change the monitoring schedule from every 3 months to every 6 months.

When periodic monitoring taken two consecutive times at least 7 days apart shows employee exposure is below the action level and the STEL, employers may discontinue

monitoring for those employees represented by the monitoring data.

Employers must perform additional monitoring when workplace conditions change---for example, when there is an indication that employee exposures have increased; changes occur in the production, process, control equipment, or work practices that could affect exposure levels; and leaks, ruptures, or other breakdowns occur.³

Table 1: Monitoring Requirements

<i>Exposure Scenario</i>	<i>Required Monitoring Activity</i>
Below the action level and at or below the STEL	No 8-hour TWA or STEL monitoring required
Below the action level and monitoring; above the STEL	No 8-hour TWA monitoring required; monitor STEL exposures every 3 months.
At or above the action level, at or below the PEL, and at or below the STEL	Monitor 8-hour TWA exposures every 6 months
At or above the action level, at or below the PEL, and above the STEL	Monitor 8-hour TWA exposures every 6 months and monitor STEL exposures every 3 months.
Above the PEL and at or below the STEL	Monitor 8-hour exposures every 3 months.
Above the PEL and above the STEL	Monitor 8-hour TWA exposures and STEL exposures every 3 months.

³Cleanup of methylene chloride spills and repairs to leaks must be made prior to performing exposure monitoring.

Employers must notify employees of all monitoring results, in writing, either individually or by posting the results in an accessible location, within 15 working days after receipt. When monitoring results show exposures above the PEL or STEL, the notification also must describe the corrective action being taken to reduce exposures to or below these limits.

Employers must allow affected employees or their designated representatives to observe any monitoring. The employer also must provide employees with appropriate protective clothing or equipment needed to enter regulated areas where the monitoring is performed. Employees and their designated representatives must wear the protective clothing and equipment provided and must comply with all other applicable safety and health procedures.

Medical Surveillance

Medical surveillance is a comprehensive way to determine if exposure to workplace hazards adversely affects employee health. Through frequent required medical exams or tests, early detection of occupational diseases is possible and preventive measures can be taken to curtail overexposure.

Employers must put in place a medical surveillance program for all employees exposed to methylene chloride, unless the affected employees will be exposed to methylene chloride at or above the action level for fewer than 30 days per year or that affected employees will be exposed at, or above the PEL or STEL for fewer than 10 days during the year. Employers also must provide medical surveillance to any employee exposed above the PEL or STEL who has been identified by a physician or other licensed health care professional as at risk for cardiac disease or some other serious methylene chloride-related health condition and who requests inclusion, regardless of the duration of methylene chloride exposure; and to all employees during an emergency.

Employers must provide medical surveillance at no cost to the employee, without loss of pay, and at a reasonable time and place. Medical surveillance must be available

- within 180 days of the effective date of the standard, or by October 7, 1997, or before initial work assignment, whichever is most recent, unless adequate records show an affected employee has received appropriate medical surveillance within the past 12 months for employers with 20 or more employees,
- within 1 year of the effective date of the standard, or by April 10, 1998, for employers with fewer than 20 employees,

- within 270 days of the effective date of the standard, or by January 5, 1998, for foam manufacturers with 20 to 99 employees,
- within 1 year of any initial or subsequent mechanical surveillance. The frequency of required periodic medical exams varies by age of the employee,⁴
- at the end of employment or reassignment to an area where methylene chloride exposure is consistently below the action level and STEL, and/or
- when recommended in the physician's or licensed health care professional's⁵ written opinion.

For employees working in an atmosphere with methylene chloride concentrations above the PEL or STEL---and therefore required to use a respirator---the examining, physician or licensed health care professional must determine the employee's ability to wear an air-supplied respirator in negative-pressure mode or a gas mask with organic vapor canister for emergency escape and state this in a written opinion to both the employee and employer.

A physician or licensed health care professional must supervise all medical procedures. Medical exams⁶ must include at least

- a comprehensive medical and work history,⁷
- a physical exam with special emphasis on the lungs, cardiovascular system, liver, nervous system and skin, including blood pressure and pulse,
- laboratory surveillance⁸ based on the employee's observed health status and medical and work history, and

⁴Periodic medical exams are required as follows: employees 45 years or older---within 12 months of initial or subsequent medical surveillance; employees younger than 45 years---within 36 months of initial or subsequent medical surveillance (unless warranted sooner by a licensed health care professional, based on employee's annual medical and work history.)

⁵A person whose legally-permitted scope of practice allows him or her to independently perform the required health care surveillance activities.

⁶Medical surveillance---such as referrals for consultation or examination---may be provided.

⁷See Appendix B for an example of the medical and work history format that satisfy this requirement.

⁸See Appendix B for an example of the methylene chloride standard for medical test recommendations.

- any other information,⁹ the examining physician or licensed health care professional determines necessary to provide an appropriate assessment.

Employers, must ensure medical emergency exams are available in emergency situations and include, at a minimum,

- the appropriate medical treatment and decontamination of the exposed employee,
- a comprehensive physical exam with special emphasis on the nervous system, cardiovascular system, lungs, liver, and skin including blood pressure and pulse,
- an updated medical history as appropriate for the employee's medical condition and
- laboratory surveillance as indicated by the employee's health status.

The employer must provide the examining physician or health care professional or any specialist involved in the diagnosis of methylene chloride-induced health effects with

- a copy of the methylene chloride standard and its appendices,
- a description of the affected employee's past, current, and anticipated future duties relating to methylene chloride exposure,
- the employee's former or current methylene chloride exposure levels or anticipated levels, their frequency, and anticipated exposure levels associated with emergencies,
- a description of any personal protective equipment (i.e., respirators) used or to be used, and
- information from previous employment-related medical surveillance.

The physician or other licensed health care professional must give the employer and affected employee the written opinion regarding exam results within 15 days of completing the evaluation of the medical and lab findings, but no more than 30 days after

⁹When the examining physician or other licensed health care professional deems it necessary, the scope of the medical exam may be expanded and the appropriate additional medical surveillance provided.

the exam. The written medical opinion must be limited to

- the physician or licensed health care professional's opinion whether the employee has any detected medical conditions that would increase the risk of material, impairment from exposure to methylene chloride,
- any recommended limitations on employee exposure to methylene chloride and on the use of personal protective clothing or equipment and respirator,
- a statement that the physician or licensed, health care professional has informed the employee that ethylene chloride is a potential occupational carcinogen, of the risk factors for heart disease, and the potential exacerbation of underlying heart disease from methylene chloride exposure and its metabolism to carbon monoxide, and
- a statement that the physician or licensed health care professional has informed the employee of medical exam results and any medical conditions resulting from methylene chloride exposure requiring further explanation or treatment.

The examining physician or licensed health care professional must not reveal to the employer, orally or in writing, any specific records, findings, or diagnoses that have no bearing on occupational exposures to methylene chloride.

Methods of Compliance

Control Measures

Engineering and work practice controls are the primary methods used to reduce occupational exposure to methylene chloride. Employers must use engineering controls and work practices to effectively reduce and maintain employee exposure to methylene chloride at or below the PEL---except when the employer can prove these controls infeasible.

Engineering Controls

Engineering controls reduce employee exposure in the workplace either removing or isolating the hazard or isolating the worker from. Engineering controls reduce or remove ambient air contaminant exposure hazards. Local exhaust ventilation, general and special isolation devices or enclosures are examples of engineering controls.

Employers must institute and maintain the effectiveness of engineering controls to reduce employee exposure to or below the PEL.

It is important to note that when engineering controls alone do not reduce methylene chloride exposure to or below the PEL and STEL, employers must reduce exposure to the lowest possible levels achievable and supplement them with the use of respirators.

All other employers must implement the required engineering controls within 1 year after the effective date of the standard, or by April 10 1998. Employers with fewer than 20 employees are given 3 years to implement the required engineering controls and foam manufacturers with 20 to 99 employees have 2 years to implement the engineering control.

Work Practice Controls

Work practice controls reduce the likelihood of exposure by altering the manner in which a task is performed. An example would be to provide washing facilities and ensure that employees use them to prevent further methylene chloride exposure after leaving the work area.. Another safe practice is to require employees to eat, drink, smoke, take medication, or apply cosmetics outside of the methylene chloride work area.

Administrative Controls

An administrative control removes the worker from exposure. For example, one method of controlling worker exposure to contaminants is by scheduling operations with the highest when the fewest employees are present. Employee rotation--i.e., scheduling several employees to perform work in the exposure area for shorter time limits--however, is not an effective means to control methylene chloride exposure since it may reduce individual exposure but increase the number of employees exposed. Employee rotation as a means of compliance with the PELs is **strictly prohibited** by this standard.

Under the methylene chloride rule, the employer must implement procedures to detect methylene chloride leaks. In work areas where spills may occur, provisions must be in place to contain them, promptly clean up, and safely dispose of any methylene

chloride contaminated waste materials. All leaks must be repaired and spills cleaned by employees wearing the appropriate personal protective equipment and who are trained in proper cleanup methods.¹⁰

Employers covered by this standard also may be covered by the provisions of 29 CFR 1910.120(q), *Emergency Response to Hazardous Substance Releases*.

Respiratory Protection

Unlike engineering and work practice controls, which reduce the hazard and result in a more "universal" protection, respirators protect employees individually. The sole use of engineering and work practice controls may not be enough to reduce occupational exposure below the PEL. In these cases, the combinations of engineering and work practice controls **and** respirators provide appropriate protection for **all** employees where methylene chloride is used.

The employer must provide, at no cost to each affected employee, and ensure the use of respirators when

- an employee's exposure to methylene chloride is likely to exceed the PEL and STEL,
- installing or implementing feasible engineering and work practice controls,
- the employer demonstrates that engineering and work practices controls are infeasible, such as some maintenance operations and repair activities,
- feasible engineering controls and work practices do not sufficiently reduce exposures to or below the PEL, and
- in emergencies.

Appropriate respiratory protection varies with exposure levels, as specified in Table 2. Atmosphere-supplying respirators must be selected from those approved by the National Institute for Occupational Safety and Health (NIOSH). Employers may provide gas masks with organic vapor canisters, approved by NIOSH, only for use in emergency escape. The canisters, however, must be replaced after each use prior to returning the respirator to service.

Where respirators are used, the employer must institute a comprehensive respiratory protection program that complies with 29 CFR 1910.134, *Respiratory Protection*

¹⁰See Appendix A in the methylene chloride standard for examples of procedures, satisfying this requirement.

Table 2: Minimum Requirements for Respiratory Protection for Airborne Methylene Chloride

<i>Methylene Chloride Airborne Concentration (ppm) or Condition of Use</i>	<i>Minimum Respirator Required*</i>
Up to 625 ppm (25 X PEL)	(1)Continuous flow supplied-air respirator, hood, or helmet.
Up to 1250 ppm (50 X PEL)	(1)Full facepiece supplied-air respirator operated in negative pressure (demand) mode. (2)Full facepiece self-contained breathing apparatus (SCBA) operated in negative pressure (demand) mode.
Up to 5000 ppm (200 X PEL)	(1)Continuous flow supplied-air respirator, full facepiece (2)Pressure demand supplied-air respirator, full facepiece. (3)Positive pressure full facepiece SCBA.
Unknown Concentration, or above 5000 ppm (Greater than 200 X PEL)	(1)Positive pressure full facepiece SCBA. (2)Full facepiece pressure demand supplied-air respirator with an auxiliary self-contained air supply.
Firefighting	Positive pressure full facepiece SCBA
Emergency Escape	(1)Any continuous flow or pressure demand SCBA. (2)Gas mask with organic vapor canister.

*Respirators assigned for higher airborne concentrations may be used at the lower concentrations.

Each respirator issued must be fitted properly for the least possible facepiece leakage. For negative-pressure respirators used during emergencies, the employer must perform either qualitative or quantitative fit tests at the initial fitting and at least annually thereafter. The employer must allow employees wearing respirators to leave the regulated area to readjust them for proper fit and to wash their faces and respirator facepieces as necessary.

Hygiene Facilities and Practices

If through splashes, spills, or improper work practices employees can have skin contact with solutions containing 0.1 percent or more methylene chloride, the employer must provide conveniently located washing facilities and ensure their use.

Similarly, where there is potential for eye contact with solutions containing 0.1 percent or more methylene chloride, the employer must provide eyewash facilities within the immediate work area for emergency use, and ensure their use when necessary.

Protective Work Clothing and Equipment

Employees must use personal protective clothing and equipment where needed to prevent methylene chloride-induced skin or eye irritation. The employer must provide the methylene chloride resistant clothing and equipment at no cost to the employees and ensure its use. The employer must clean, launder, repair, replace, and properly dispose of the protective clothing and equipment to keep it effective.

Recordkeeping

The employer must establish and keep accurate records for all objective data, exposure monitoring, and medical surveillance, in accordance with *Access to Employee Exposure and Medical Records*, 29 CFR 1910.1020.

All records must be available for examining and copying by affected employees, former employees, designated employee representatives, and, following written requests, the Assistant Secretary of OSHA and the Director of NIOSH.

Objective Data Records

If an employer relies on objective data to show that initial monitoring is unnecessary, the record supporting that exemption must include information on

- the methylene chloride-containing material in question,
- the source of the objective data,
- the testing protocol, results, and/or analysis of the material
- a description of the exempted operation and the reasons why the data support that exemption, and
- other data relevant to the operations, materials, processing, or employee exposure coverage by the exemption.

The employer must maintain this record for as long as he/she relies on the objective data.

Exposure Measurement Records

Employers with 20 or more employees must keep records of employee exposure measurements, for at least 3 years. These records must include

- the date of measurement for each sample taken,
- the monitored operation involving methylene chloride exposure,
- the sampling and analytical methods used and evidence of their accuracy.
- the number, duration, and results of samples taken;
- the type of personal protective equipment (i.e., respirators) worn, and
- the name, social security number, job classification, and exposure monitoring data for all represented employees, indicating which employees were actually monitored.

Employers with fewer than 20 employees must keep records of employee exposure measurements for at least 30 years. These records must include

- the date of measurement for each sample,
- the number, duration, and results of samples taken, and
- the name, social security number, job classification, and exposure monitoring data for all represented employees, indicating which employees were actually monitored.

Medical Surveillance Records

The employer must keep medical surveillance records for the duration of each affected employee's employment plus, 30 years. These records must include

- the name and social security number of each affected employee and a description of duties,
- physician or other licensed health care professionals' written opinions, and
- employee medical conditions related to methylene chloride exposure.

Employee Information and Training

The employer must provide information and training to all employees potentially exposed to methylene chloride prior to or when initially assigned to a job.

In addition to information required under OSHA's Hazard Communication Standard---29 CFR 1910.1200, 1915.1200, and 1926.59---employers inform and train employees in an understandable way of the following:

- standard requirements, information available in the standard's appendices, and how to access a copy of it in the workplace, and
- the quantity, location, manner of use, release, and storage of methylene chloride and the specific nature of operations that could result in methylene chloride exposure, especially for exposures above the PEL or STEL--when employees' exposure to methylene chloride exceeds or can be expected to exceed the action level.

The employer must retrain employees as needed to ensure that each employee exposed at or above the action level or STEL maintains a good understanding of the principles of safe use and handling of methylene chloride in the workplace.

Also, when workplace procedures change or are added---such as task modifications---that increase employee exposures that exceed or can be expected to exceed the action level, the employer must update training to ensure continued understanding of methylene chloride hazards and control measures.

Employers of employees at multi-employer worksites must notify other employers onsite in accordance with OSHA's hazard communication standard.

Other Sources of OSHA Assistance

Safety and Health Program Management

Effective management of worker safety and health protection is a decisive factor in reducing the extent and severity of work-related injuries and illnesses and their related costs. To assist employers and employees in developing effective safety and health programs, OSHA published recommended *Safety and Health Program Management Guidelines* (*Federal Register* 54(18):3908-3916, January 26, 1989). These voluntary guidelines apply to all places of employment covered by OSHA.

The guidelines identify four general elements that are critical to the development of a successful safety and health management program:

- management commitment and employee involvement,
- worksite analysis,
- hazard. prevention and control, and
- safety and health training.

The guidelines recommend specific actions under each of these general elements to achieve an effective safety and health program. A single free copy of the guidelines can be obtained from the U.S. Department of Labor, OSHA/OSHA Publications, P.O. Box 37535, Washington, DC 20013-7535, by sending a self-addressed mailing label with your request.

State Programs

The *Occupational Safety and Health Act of 1970* encourages states to develop and operate their own job safety and health plans. States with plans approved under section 18(b) of the OSH Act must adopt standards and enforce requirements that are at least as effective as federal requirements. There are currently 25 state plan states: 23 of these states administer plans covering both private and public (state and local government) employees; the other 2 states, Connecticut and New York, cover public employees only. Plan states must adopt standards comparable to federal requirements within 6 months of a federal standard's promulgation. Until such time as a state standard is promulgated, federal OSHA provides interim enforcement assistance, as appropriate, in these states. A listing of approved state plans appears at the end of this publication.

Consultation Services

Consultation assistance is available on request to employers who want help in establishing and maintaining a safe, and healthful workplace. Largely funded by OSHA, the service is provided at no cost to the employer. Primarily developed for smaller employers with more hazardous operations, the consultation service is delivered by state government agencies or universities employing professional safety consultants and health consultants. Comprehensive assistance includes an appraisal of all work practices and environmental hazards of the workplace and all aspects of the employers present job safety and health program.

The program is separate from OSHA's inspection efforts. No penalties are proposed or citations issued for any safety or health problems identified by the consultant. The service is confidential.

For more information concerning consultation assistance, see the list of consultation projects at the end of this publication.

Voluntary Protection Programs (VPPs)

Voluntary Protection Programs (VPPs) and onsite consultation services, when coupled with an effective enforcement program, expand worker protection to help meet the goals of the OSH Act. The three VPPs---Star, Merit, and Demonstration---are designed to recognize outstanding achievement by companies that have successfully incorporated comprehensive safety and health programs into their total management system. They motivate others to achieve excellent safety and health results in the same outstanding way as they establish a cooperative relationship among employers employees and OSHA.

For additional information on VPPs and how to apply, contact the OSHA area or regional offices listed at the end of this publication.

Training and Education

OSHA area offices offer a variety of information services, such as publications, audiovisual aids, technical (advice, and speakers for special engagements. The OSHA Training Institute in Des Plaines, IL, provides basic and advanced courses in safety and health for federal and state compliance officers, state consultants, federal agency personnel, and private sector employers, employees, and their representatives.

OSHA also provides funds to nonprofit organizations, through grants to conduct workplace training and education in subjects where OSHA believes there is a lack of workplace training. Grants are awarded annually and grant recipients are expected to contribute 20 percent of the total grant cost.

For more information on grants, training, and education, contact the OSHA Training Institute, Office of Training and Education, 1555 Times Drive, Des Plaines, IL 60018, (708) 297-4810.

For further information on any OSHA program contact your nearest OSHA' area or regional office listed at the end of this publication.

Electronic Information

Internet---OSHA standards, interpretations, directives, and additional information are now on the World Wide Web at [http:// www.osha.gov/](http://www.osha.gov/) and <http://www.osha-slc.gov/>.

CD-ROM---A wide variety of OSHA materials, including, standards, interpretations, directives, and more, can be purchased on CD-ROM from the U.S. Government Printing Office. To order, write to the Superintendent of Documents, P.O. Box 371954, Pittsburgh, PA 15250-7954 or phone (202) 512-1800. Specify OSHA Regulations, Documents, and Technical Information on CD-ROM (ORDT), GPO Order NO. S/N 729-013-00000-5. The price is \$38 per year (\$47.50 foreign); \$15 per single copy (\$18.75 foreign).

Emergencies

For life-threatening situations, call (800) 321-OSHA. Complaints will go immediately to the nearest OSHA area or state office for help.

For further information on any OSHA program, contact your nearest OSHA area or regional office listed at the end of this publication.

OSHA Related Publications

Single free copies of the following publications can be obtained from the U.S. Department of Labor, OSHA/OSHA Publications, P. O. Box 37535, Washington, DC 20013-7535. Send a self-addressed mailing label with your request.

All About OSHA -- OSHA 2056

Chemical Hazard Communication -- OSHA 3084

Consultation Services for the Employer -- OSHA 3047

Employee Workplace Rights -- OSHA 3021

Employer Rights and Responsibilities Following an OSHA Inspection -- OSHA 3000

How to Prepare for Workplace Emergencies -- OSHA 3088

OSHA Inspections -- OSHA 2098

OSHA Poster -- OSHA 2203

OSHA Publications and Audiovisual Programs -- OSHA 2019

Personal Protective Equipment -- OSHA 3077

Respiratory Protection -- OSHA 3079

The following publications are available from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402, (202) 512-1800. Include GPO Order No. and make checks payable to the Superintendent of Documents.

Handbook for Small Business (OSHA 2209)

Order No. 029-016-00144-1; Cost \$4.00.

Hazard Communication A Compliance Kit (OSHA 3104)

(A reference guide to step-by-step requirements for compliance with the OSHA standard.) Order No. 029-016-04147-6; Cost \$18.00 domestic; \$22.50 foreign.)

Hazard Communication Guidelines for Compliance (OSHA 3111)

Order No. 029-016-00127-1; Cost \$1.00.

Job Hazard Analysis (OSHA 3071)

Order No. 029-016-00142-5; Cost \$1.00.

Principal Emergency Response and Preparedness Requirements in

OSHA Standards and Guidance for Safety and Health Programs

(OSHA 3122) Order No. 029-016-00136-1; Cost \$2.50.

Training Requirements in OSHA Standards and Training Guidelines (OSHA 2254)

Order No. 029-016-00137-9; Cost \$4.25.

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Occupational Safety and Health
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Olympia, WA 98504-4000
(360) 902-4200

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OSHA Consultation Project Directory

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* These states and territories operate their own OSHA-approved job safety and health programs (Connecticut and New York plans cover public employees only). States with approved programs must have a standard that is identical to, or at least as effective, as the federal standard.